

CLAIMS

What Is Claimed Is:

1 1. A spa system including a remote control for  
2 controlling operation thereof, said system comprising:  
3       a. a remote control module having a microprocessor  
4 and memory therefor and receptive to push-button inputs  
5 and having a display thereon, and having a first antenna  
6 for transmitting signals to said spa and for receiving  
7 signals from said spa;  
8       b. a master control module residing in said spa  
9 for controlling and sensing a multiplicity of functions  
10 of said spa; and,  
11       c. a slave control module coupled to said master  
12 control module and having a second antenna responsive to  
13 command signals received from said remote control and for  
14 transmitting status signals back to said remote control,  
15 said slave control module being disposed for converting  
16 said command signals received from said remote control  
17 for said master control, and for converting status  
18 signals received from said master control for  
19 transmission back to said remote control.

1 2. The system as in Claim 1 wherein a first of said  
2 command signals received from said remote control is set  
3 temperature.

1 3. The system as in Claim 1 wherein a first of said  
2 status signals received from said master control is water  
3 temperature.

1 4. The system as in Claim 1 wherein said remote control  
2 transmits command signals and receives status signals  
3 with the use of radio frequencies.

1 5. The system as in Claim 4 wherein said remote control  
2 includes an RF transceiver coupled between an output of  
3 said microprocessor and said first antenna.

1 6. The system as in Claim 1 wherein said remote control  
2 is responsive to a reduced number of push-buttons.

1 ~~7.~~ An RF remote control for controlling an apparatus  
2 having a master control module disposed for controlling  
3 and sensing a multiplicity of functions of said  
4 apparatus, said master control module having a first  
5 antenna for receiving command signals from said remote  
6 control and for transmitting status signals back to said  
7 remote control, said remote control comprising:

- 8 a. a processor;
- 9 b. memory coupled to said processor;
- 10 c. push-buttons coupled to inputs of said  
11 processor and disposed for providing input data for  
12 transmission to said apparatus;
- 13 d. a second antenna for transmitting command  
14 signals to said apparatus and for receiving status  
15 signals back from said apparatus; and,
- 16 e. a display for showing data indicative of said  
17 status signals received from said apparatus.

1 8. The remote control as in Claim 7 wherein said remote  
2 control includes a reduced number of push-buttons.

1 9. The remote control as in Claim 7 wherein said remote  
2 control includes an RF transceiver coupled between an  
3 output of said processor and said first antenna.

1 ~~10.~~ In a remote control for an apparatus having a master  
2 control module disposed for controlling and sensing a

3 multiplicity of functions of said apparatus, a method for  
4 transmitting command signals to said master control  
5 module from said remote control and for receiving status  
6 signals back from said master control module, said method  
7 comprising:

8 a. after initialization, turning on a back light  
9 in said remote control;

10 b. determining if a push-button on said remote  
11 control has been depressed, and if so;

12 c. resetting a timer and placing said remote  
13 control in transmit mode;

14 d. transmitting a data signal to said apparatus  
15 indicative of said depressed push-button;

16 e. resetting a timer and placing said remote  
17 control in receive mode; and,

18 f. receiving and displaying said status signal  
19 received from said master control.

1 11. The method as in Claim 10 wherein it is determined  
2 that a push button has not been depressed, further  
3 including the steps of:

4 a. determining if a 15 second timer has expired,  
5 and if so;

6 b. turning off the back light of said remote  
7 control.

1 12. The method as in Claim 10 wherein no push button has  
2 been depressed for over two minutes, further including  
3 the steps of:

4 a. placing said remote control in a sleep mode;

5 b. determining if a push button has been  
6 depressed, and if not;

7 c. putting said remote control off line.

1 13. The method as in Claim 10 further including the step  
2 of placing said remote control in a normal receive mode.

1 14. The method as in Claim 13 further including the  
2 steps of:

- 3 a. determining if data is requested, and if so;
- 4 b. sending request to said master control;
- 5 c. listening for a reply from said master control,  
6 and if valid data is received;
- 7 d. displaying said valid data.

1 15. The method as in Claim 14 further including the step  
2 of determining if more than two requests for data have  
3 been made, and if so, clearing said display of said  
4 remote control.

1 ~~16.~~ In a remote control for controlling a spa having a  
2 master control module disposed for controlling and  
3 sensing a multiplicity of functions of said spa, a method  
4 for transmitting command signals to said master control  
5 module from said remote control and for receiving status  
6 signals back from said master control module, said method  
7 comprising:

- 8 a. after initialization, turning on a back light  
9 in said remote control;
- 10 b. determining if a push-button on said remote  
11 control has been depressed, and if so;
- 12 c. resetting a timer and placing said remote  
13 control in transmit mode;
- 14 d. transmitting a data signal to said spa  
15 indicative of setting water temperature thereof;
- 16 e. resetting a timer and placing said remote  
17 control in receive mode; and,

18       f. receiving and displaying data representative of  
19 water temperature sensed in said spa by said master  
20 control.

1       17. A storage medium encoded with machine-readable  
2 computer program code for use in a remote control for  
3 controlling a spa having a master control module disposed  
4 for controlling sensing a multiplicity of functions of  
5 said spa, wherein, when the computer program code is  
6 executed by said remote control, the remote control  
7 performs a method for transmitting command signals to  
8 said master control module from said remote control and  
9 for receiving status signals back from said master  
10 control module, said method comprising:

11       a. after initialization, turning on a back light  
12 in said remote control;

13       b. determining if a push-button on said remote  
14 control has been depressed, and if so;

15       c. resetting a timer and placing said remote  
16 control in transmit mode;

17       d. transmitting a data signal to said spa  
18 indicative of setting water temperature thereof;

19       e. resetting a timer and placing said remote  
20 control in receive mode; and

21       f. receiving and displaying data representative of  
22 water temperature sensed in said spa by said master  
23 control.

1       18. The medium as in Claim 17 further including the step  
2 of placing said remote control in a normal receive mode.

1       19. The medium as in Claim 18 further including the  
2 steps of:

3       a. determining if data is requested, and if so;  
4       b. sending request to said master control;  
5       c. listening for a reply from said master control,  
6 and if valid data is received;  
7       d. displaying said valid data.

1       20. The medium as in Claim 19 further including the step  
2 of determining if more than two requests for data have  
3 been made, and if so, clearing said display of said  
4 remote control.

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